

MOTORIZED FILM REWIND UNIT

Project #1012

25 Nov 1964

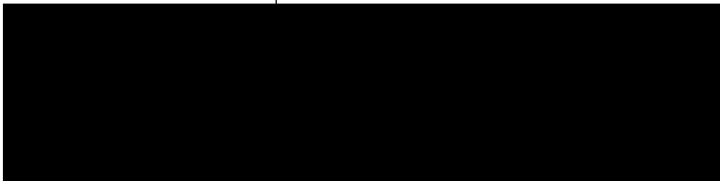
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25 November 1964

STATINTL


Exploratory Development Laboratory Branch, P&DS

ABSTRACT

A motor driven film rewinder has been assembled from available major components and a few minor hand-made parts. The unit is relatively safe and performs well but its life expectancy is limited. It is recommended that steps be taken to initiate procurement of either a complete replacement unit or the several weak mechanical components which are undersize at present.

THE PROBLEM

A single motorized device was required for rapidly rewinding film. It was to be portable, provide for film widths ranging from 70mm to 9 $\frac{1}{2}$ inches, provide variable speed control, be safe for use by unskilled personnel and be quickly assembled from available components insofar as practicable.

THE SOLUTION

The photographs of Figs. 1 and 2 show the unit which has been produced. All components are mounted on a plywood base which may be removed from the cart.

The major features are: a direct-drive, torque-motor-powered, take-up spindle; a handwheel on the supply spindle for manual braking; outboard springs on plunger-type spindles to position the load as near the support bearings as possible; slidable spindle blocks to accommodate different film widths; and a motor control box containing a line switch, a power-on indicating light and a speed control knob. All metal parts and the cart are grounded by means of a three-conductor power cord.

The no-load speed of the motor is approximately 600 rpm and the operating speed approaches this figure. This is about as fast as it is considered safe to operate the assembly. The fact that energy is supplied by a low-powered torque motor is a definite advantage when considering safety. The speed of such a motor varies inversely with load and it can be held in a stalled condition indefinitely without being damaged. Therefore, a careless operator is not likely to be seriously injured if he should become entangled.

CONCLUSIONS AND RECOMMENDATIONS

If not accidentally damaged, and if the spindle bearings are lubricated with a few drops of oil periodically, the film rewinder may be expected to perform satisfactorily for several months and perhaps even for a year. The weakest feature is the small, 5/16-inch diameter of the three [REDACTED] spindles. Extreme care will be necessary just to keep from bending them.

It is therefore suggested that steps be taken immediately to initiate procurement of either a complete rewind unit of suitable ruggedness or a complete set of four spindle assemblies to replace those on the existing unit. It is recommended that the spindles be at least $\frac{1}{2}$ -inch in diameter and that the radial bearings be either Oilite-type sleeve bearings or sealed ball bearings. Sealed ball bearings should certainly be used for transmitting the thrust from the plunger springs to the plungers.

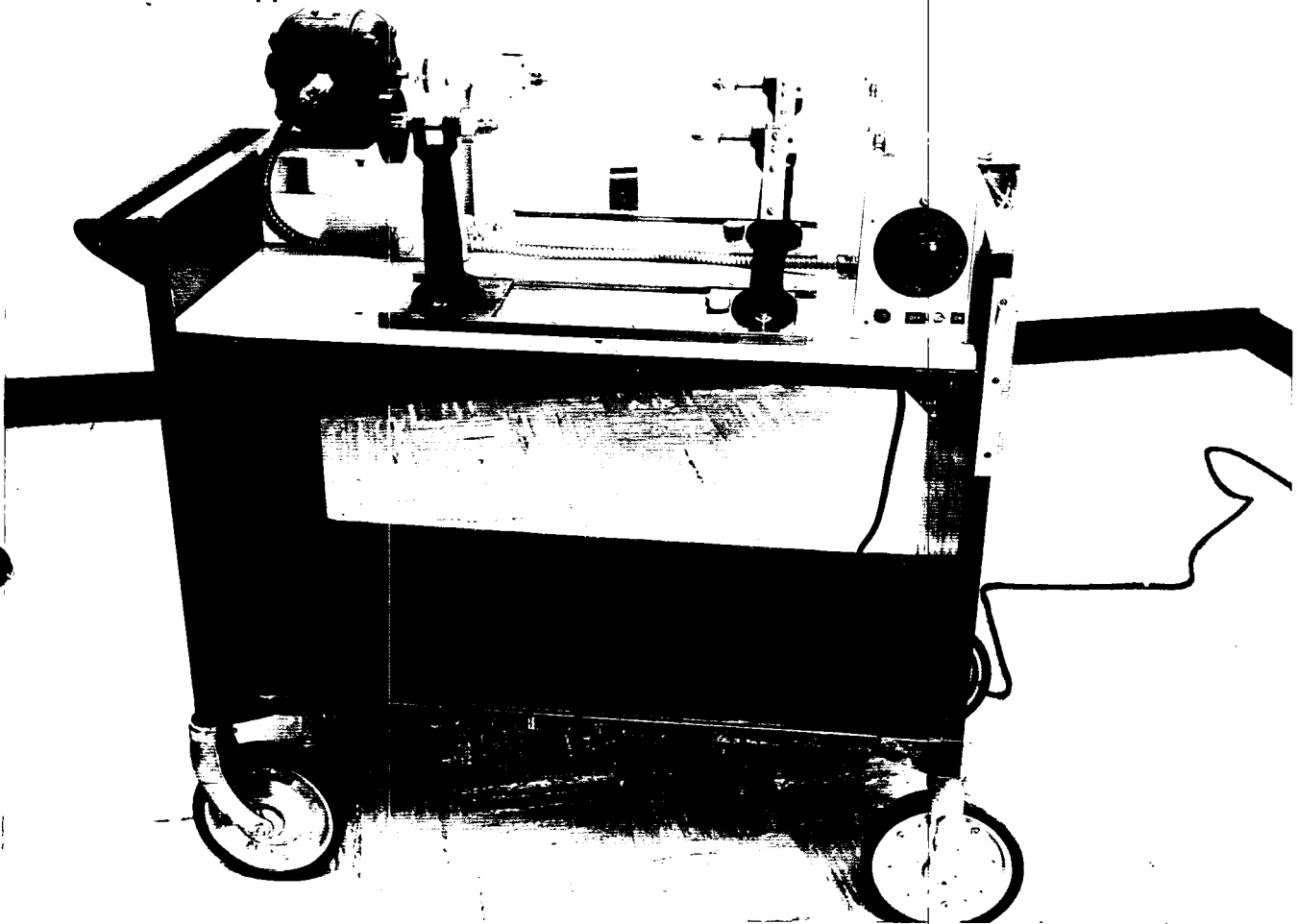


FIGURE 1:

Motorized film rewind unit mounted on a cart. The speed and power of the torque motor can be varied by means of the control unit on the right.

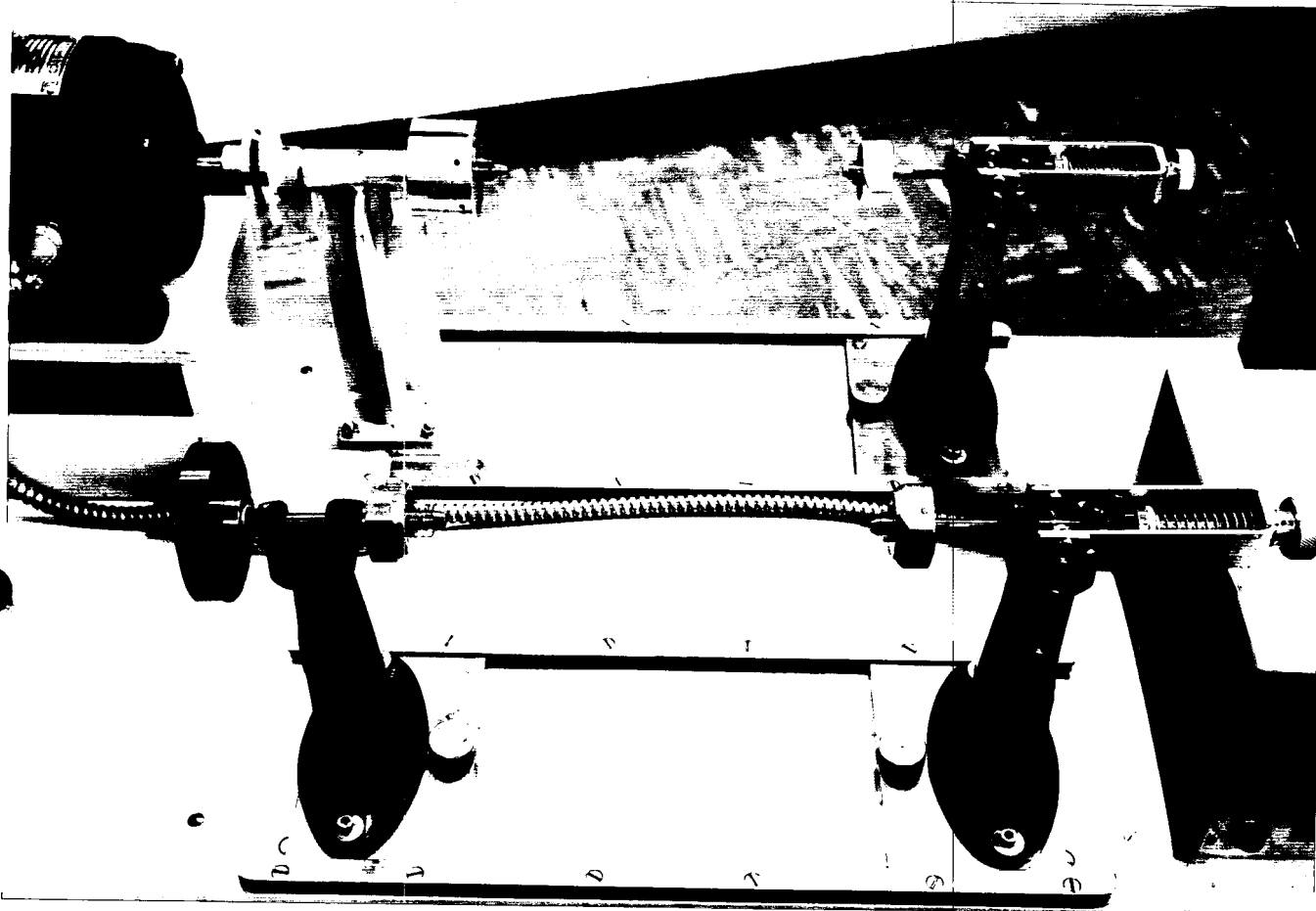


FIGURE 2:

Close-up of the spindles. Note the large knob on the lower left spindle which permits manual braking of the supply spool.

